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Prostate Cancer Disparities in an Incarcerated Community

PRINCIPAL INVESTIGATOR:
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CONTRACTING ORGANIZATION:
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13. SUPPLEMENTARY NOTES This award was essential in dissecting the cross-racial and ethnic health within an incarcerated community. Dr. Borysova gained extremely valuable postdoctoral experience which led to her being awarded an 18 month grant to continue the important work on matters of racial and ethnic health disparities and health equity. Dr. Borysova conducted the research defined herein while overcoming obstacles and learning how to navigate through issues of research environment limitations and opportunities. This grant has provided a great opportunity not only to address the initial SOW, but for the PI to learn how to limit and expand the SOW of funded research as the research environment changes. To this end the research summary provided here is accompanied with the approved modified SOW submitted with the NCE request which was approved as well. Thank you for this opportunity!			

14. ABSTRACT

The objectives and purpose of the second year of this award are to provide the principal investigator (P.I.) with training and skills necessary to move forward in a career focused on resolving the major issues of racial and ethnic health inequities in the U.S. The scientific purpose of this grant was to evaluate the cross-racial and ethnic prostate cancer health within an incarcerated community. This grant has provided in-depth and important postdoctoral training through a defined training agenda and as well through the experience of navigating through the world of research in the state Departments of Corrections. The training results are a trained PI with expertise in the subject matter, exposure and experience in navigating independent research. The PI has completed this award and subsequently been awarded \$500,000 grant (with 2 colleagues), accompanied with a transition from postdoctoral fellow to a position as a research associate at the University of South Florida focused on racial and ethnic health disparities. The scientific results from the second year include a vast amount of data on the cross-racial and ethnic mortality within an incarcerated setting. These data have significant health implications with opportunities for Department of Corrections policy changes to address health needs of incarcerated African American men. The major findings are applicable to men incarcerated in prisons in the Wisconsin Department of Corrections (WDOC) and include: (1) Leading Causes of All-Causes of Death in WDOC vs. U.S. General Population; (2) Leading Types of Cancer Deaths in the WDOC vs. U.S. General Population; (3) Percent of Deaths by Race; (4) Age of Death by Race for All-Cause Mortality; (5) Age of Death by Race for Individual Causes of Mortality; (6) Age of Death by Race for Cancer Types; (7) Age of Death by Race, Condition, and Time of Diagnosis; (8) Life-span by race in the WDOC, Wisconsin, and U.S. General Population. These novel data are significant as they are the first of their kind to draw attention to the major racial health disparities within a Department of Corrections wherein there is a presumption of equal access to, and quality of, the same health care.

15. SUBJECT TERMS

African Americans, Department of Corrections, Health Disparity, Mortality, Cancer

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Table of Contents

	<u>Page</u>
Introduction.....	5
Body.....	5
Training and Professional Development.....	5
Research Project.....	9
Key Research Accomplishments.....	11
Reportable Outcomes.....	11
Conclusion.....	12
Revised Statement of Work.....	13

Introduction Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.

The subject of this award is the cross-racial and ethnic health of incarcerated communities. The award was written to focus on Prostate Cancer, but due to the available datasets and the size of the incarcerated population with whom we developed a community partnership the subject was expanded to include the cross-racial and ethnic causes and ages of mortality within the incarcerated prison setting. The purpose of this training award was to provide postdoctoral training that would prepare the PI for a career as an independent health disparities researcher; and that has come to fruition. The scope of the research includes causes of mortality and life-spans of African American and Caucasian men incarcerated in the Wisconsin prison system. The training component of this award includes direct mentorship, attendance at conferences, seminars, lectures, presentations of data through meetings and manuscripts, grant writing experience, professional networking and coursework. The research component of this award includes developing a community partnership with a state department of corrections, conducting a 10-year retrospective analysis of cross-racial health among the incarcerated population by studying the cross-racial and ethnic causes of mortality, lifespan, and the socio-environmental factors that mediate disparities.

Body

(A) Training and Professional Development

Dr. Borysova's postdoctoral training and professional development activities in the second year have focused on (1) the continuous development of a strong community partnership; (2) scientific and community networking and training related to community participatory research; (3) preparation of grants for a continuation of community based participatory research on matters of health equity as an independent investigator. Dr. Borysova has become well trained and competent in developing community partnerships, has successfully co-written and been awarded a grant to continue with community based participatory health equity research and interventions, while networking with a broader health equity/health disparities research community focused on issues from research to interventions; cancer disparities to vaccination disparities. Dr. Borysova has gained the training and professional development necessary to bridge the gap between the biological and social research realms.

The training and professional development plan is described below. Following is a list including a detailed description of how Dr. Borysova has followed through with the training plan as outlined in the award application; following which is a list of additional training not proposed in the award application (opportunities received due to this award); following which is a summary and a career development timeline.

(List 1-10 below is the second year adaptation of the list from the First Year Annual Award Summary.)

1. Structured mentoring program coordinated by PI/primary mentor. The second year provided Dr. Borysova with an opportunity to function with greater independence and autonomy. While continued mentorship by Dr. Williams has been provided through face-to-face meetings and discussions, Dr. Dawood Sultan assumed the major mentor role in terms of both research and career development. This mentorship has been particularly important for Dr. Borysova's data analysis, career trajectory plans, and career development.

2. Gain proficiency and a better understanding of science used to develop and implement primary prevention intervention in minority populations. (The experience of

attending HELI (described herein) was crucial to Dr. Borysova's development as a Community Researcher. This experience was detailed in the Year One Annual Report but was an activity directly related to year two of this award.) Dr. Borysova has continued her Year One focus on community engagement, community and academic partnerships, and community based participatory research. Continuous readings of primary literature related to the subject has greatly enhanced Dr. Borysova's knowledge and understanding of how to partner with community organizations including the Department of Corrections with whom she has partnered. Of great significance were (1) Dr. Borysova's experience with the Health Equity Leadership Institute (HELI) for which she was selected as a 2013 Scholar: This week-long Health Disparities Research Boot Camp at the University of Wisconsin provided detailed forums, seminars, one-on-one discussions, site visits, and honest discussions regarding the good and bad experiences that both community members and academic researchers have had as they have engaged in research interventions. (2) *A weeklong visit with the Wisconsin Department of Corrections. This experience was funded and supported by the Wisconsin Department of Corrections (WDOC) and offered tremendous opportunities to interact with the WDOC research staff including analysis of data described herein, acquisition of new variables for analysis, exposure to the prison community including its grounds, health clinics, clinicians, employees and inmates. This opportunity provided invaluable experience to really generate a hands-on observation of how health care is delivered within the WDOC, and who delivers the health care; their perspectives and thoughts on the data and policies.* While Dr. Borysova's research experience and scope of understanding of interventions prior to this award was limited to the confines of an academic setting, this award has provided her with one of the most essential skill sets – understanding how to engage research and communities together to lead to successful interventions geared toward improving health of individuals and communities. Many of these experiences has pertained directly to prostate cancer in minority communities, but much has related to addressing health disparities of many types in underserved communities, or communities of color. Great research knowledge and expertise can be harnessed into successful improvements in health for the populations we are most concerned about if and when interventions are conducted through mutually beneficial and respectful *partnerships*. This is something that can be best understood by leaving the office and going into communities.

3. Gain hands-on research experience in the implementation and conduct of research studies:

Dr. Borysova has worked extensively and with independence to forge into new research territory by studying cross racial and ethnic health of prisoners. In the first year of the grant Dr. Borysova worked to establish community partnerships with two different departments of corrections (DOCs). In the second year of the grant Dr. Borysova conducted scientific analysis of data using and learning scientific skill sets that are new to her. This has required extensive. These experiences have provided the skills to establish her as a Health Disparities researcher capable of conducting both research and intervention studies with community partners.

4. Initiate and complete a research project. Dr. Borysova has conducted analysis of data and reporting results. The project has come to completion; however, Dr. Borysova is still writing up the data into manuscripts for broader dissemination. Data and manuscripts are all vetted by the WDOC prior to dissemination.

5. Develop interventions and independent research questions based on the results from the completed research study. Several interventions and questions are developed for future research and interventions. It is my belief that discovery of racial and ethnic health disparities

must soon be turned into broad based investment and research efforts geared toward providing opportunities to bring about change within largely minority communities who have long suffered from the impacts of health inequalities, racism and overincarceration. Positive changes from pilot programs ought to be coupled with media attention to demonstrate that life circumstances affects outcomes and researchers and community partners can affect life circumstances.

6. Gain extensive grant writing experience. Dr. Borysova has developed her grant writing skills in year two by co-writing (and awarded) with two colleagues a \$500,000 grant to bring adult vaccination services to the largely minority underserved communities in her local area; largely the same communities among whom over-incarceration of minorities occurs. She has partnered with the Florida Department of Health as well as members of the local communities, representatives who will help identify the needs, wants, thoughts and concerns of the communities on behalf of whom the grant intends to help.

7. Responsible conduct of human research in vulnerable communities. This was primarily achieved during year one, but Dr. Borysova has continued in year two to maintain annual training and education in conducting research within vulnerable communities.

8. Attend research and educational meetings. Dr. Borysova continued in Year Two to attend seminars, discussions and Grand Rounds. In addition Dr. Borysova has been an invited lecturer for two different college level courses on health and wellness, cancer, and health disparities.

9. Scientific writing and research dissemination. Dr. Borysova is currently preparing manuscripts on the data analyzed for this award. The data is being vetted by the WDOC and manuscript authors are currently writing up the results. The DOD will be notified when those manuscripts are in their final acceptance stage.

10. Interactions with established scientists, networking, and peer linkages. Dr. Borysova continues in year two to network and collaborate with other scientists. She has established a collaboration with a well-regarded USF suicide researcher and his graduate student to pursue future directions of research stemming Dr. Borysova's findings of high levels of suicide within the WDOC. Together a protocol has been written for WDOC to review and hopefully approve in order to conduct hypothesis driven research into causality and risk factors for suicide in prison.

Additional career and professional development training not proposed in the award application. This award has been essential for providing Dr. Borysova with numerous additional experiences that have been amazing for her career growth and development. While some of these are reflected in experiences such as impactful conversations and exposures, others are tangible and noteworthy and listed below.

(1) Dr. Borysova has been invited in year two (but declined the invitation) to **review graduate student research applications for the national Paul Ambrose Scholar Program** which self-defines as a program which "exposes health professions students to influential public health professionals and prepares them to be leaders in addressing population health challenges at the national and community level." Scholarships were awarded to students to attend a four-day symposium in Washington, DC and conduct a community-based health education project at their institution.

(2) Dr. Borysova continues in year two to accept invitations to function as a **Reviewer of manuscripts** submitted to the following journals relevant to her field of study: **Journal of Health**

Care for the Poor and Underserved (JHCPU) which is a peer-reviewed journal focusing on contemporary health care issues of medically underserved communities. JHCPU is the official journal of the Association of Clinicians for the Underserved **Health Promotion Practice (HPP)** which is a peer-reviewed bi-monthly journal devoted to the practical application of health promotion and education. HPP focuses on critical and strategic information for professionals engaged in the practice of developing, implementing, and evaluating health promotion and disease prevention programs. This journal is a member of the Committee on Publication Ethics; and **Journal of Health Disparities Research and Practice** which is a peer-reviewed journal that explores the problems and challenges of health disparities among the diverse populations of the United States and the world. The journal invites submission of original papers from researchers, public health practitioners, and students researching and working on health disparities solutions.

(3) Dr. Borysova was invited by the Wisconsin Department of Corrections to spend a week of hand-on experiential learning and data sharing. This opportunity was crucial in gaining perspectives and understanding of the incarcerated population and community partner itself.

(4) Dr. Borysova and 2 co-PIs were awarded a nearly half-million dollar grant from Pfizer Company to increase vaccination update among minority and underserved populations in Florida.

Summary of Training and Professional Development

This second year of this award has been a great period of professional and scientific growth in Dr. Borysova's training. The second year of this award has allowed Dr. Borysova to pursue collaborations to continue working on important research questions borne from the research in this award. The second year has allowed Dr. Borysova to transition from a postdoctoral position into a position as an independent health disparities researcher.

Table 1: Career Development Experiences and Timeline (blue indicates accomplished, checkmark indicates continuation of training plan; additional experiences not outlined in award application are not integrated into this timeline):

Career Development Experiences / Timeline in Months	1-4	5-8	9-12	13-16	17-20	21-24
Structured mentoring program by PI/mentor	√	√	√	√	√	√
Gain proficiency and a better understanding of science used to develop and implement primary prevention intervention in minority populations.	√	√				
Research experience in implementation and conduct of research studies	√	√	√	√	√	√
Initiate and complete the research project.	√	√	√	√	√	√
Develop interventions and independent research questions based on the results from the completed research study.						√
Gain hands-on grant writing experiences.	√	√	√	√	√	√
Responsible conduct of human research.	√	√	√	√		
Attend Research and Educational Meetings (1 per week)	√	√	√	√	√	√
Scientific writing and research dissemination.	√	√	√	√	√	√
Interactions with established scientists, networking, and peer linkages.	√	√	√	√	√	√
Submit grant for independent funding to support health equity and health disparities research and interventions.						√

(B) Research Project

The second year of this award has allowed Dr. Borysova to analyze all possible data from datasets provided by the community partner. This progress has been shaped around the original aims described in the application but has been expanded reflective in a broader statement of work.

Hypothesis or Objective

This study was designed to determine the cross-racial and ethnic prevalence of conjectural behaviors and biological markers associated with increased and decreased risks for prostate cancer; and characterize the incidences and mortality of prostate cancer, thereby establishing the Florida Department of Corrections (FDOC) as a model for elucidating the genetic, epigenetic, and socio-environmental etiologies of prostate cancer.

During Year Two Dr. Borysova worked exclusively with the Wisconsin Department of Corrections (WDOC) expanding her award with permission/approval of the award agency. The WDOC datasets allowed for a cross-racial analysis of mortality and lifespan within their prison system.

A. Description of Analysis

The research described herein was carried out by conducting an analysis of cause, type, age, education-level and race related mortality. Percentage of mortality causes within the Wisconsin DOC were compared the the U.S. population. Due to the differing etiologies of cancers, deaths from different cancers were analyzed across racial groups. Analytical programs including Excel and STATA were used to conduct the analysis. Direct numbers and percentages of the deceased population were determined. As a factor of race, deaths were compared for individuals who were admitted to the DOC with a known pre-existing condition versus a condition discovered during their incarceration. Analysis is not complete with population-level analyses still underway. Data has not yet been analyzed to reflect the length-of-stay in prison, security levels or zip code of residence prior to incarceration.

B. Findings

1. Leading Causes of Death: In the Wisconsin DOC (WDOC) leading causes of death in order are Cancer, Cardiovascular diseases, Suicide, Pulmonary diseases, Liver diseases, Cerebrovascular accident, non-illnesses, and finally AIDS. 30% of inmates incarcerated in the WDOC die from Cancer while it is the number 2 leading cause of death in the U.S. whole population (nearly tied for 1st leading cause) at 23%. Cardiovascular diseases cause 24% of deaths among WDOC inmates and 24% of deaths among the U.S. population as a whole. Deaths from Pulmonary Diseases, Liver Diseases, AIDS and Suicide are higher among WDOC inmates than the general U.S. population; while Cerebrovascular Accidents (CVA) are lower among WDOC inmates than the general U.S. population.
2. Leading Causes of Cancer Deaths: In the WDOC the leading causes of cancer deaths among male inmates in order from most to least were Lung at 39%, Colorectal and Liver both around 7%, Pancreatic cancer, Kidney/Renal Pelvis, and Prostate at 3%, all other cancers combined at 37%. In the U.S. general population

lung cancer is also the leading cause of cancer deaths among men but at a lower percentage of 29% followed by Colorectal and Prostate Cancer both at 9% (this is 3 times the level of the Prostate cancer deaths in the WDOC), Pancreatic cancer, Liver, Kidney/Renal Pelvis and all other cancers at 42%.

3. Percent of Deaths by Race: Black and white men who have died in the WDOC have nearly equal causes of death for Cancer, Cardiovascular disease, pulmonary disease, liver disease and CVA. More WDOC white men die from Suicide than do black men; and more black men die from AIDS than do white men.
4. Age of Death by Race for all-cause mortality: For all-cause mortality, Black men in the WDOC die significantly younger than do white men in the WDOC. While 46% of White men died at 55 years old or younger in the WDOC, 73% of Black men died at age 55 years or younger. All age categories reduced lifespan for Blacks than White men, with the exception of category 15-24 years of age in which the data was the same for both races but the sampling was too small to gauge statistical significance.
5. Age of Death by Race for individual causes of mortality: Cancer, Cardiovascular diseases, Suicide, Pulmonary diseases, Liver diseases and CVA were analyzed for age of death by race. For Cancer, Cardiovascular disease and Pulmonary diseases black men died younger than did white men; while lifespans were equivalent for Liver disease and CVA. Suicide trended toward a shorter life-span for black men; however, it is likely not statistically significant and probably equivalent.
6. Age of Death by Race for Cancer types: For all-cancers Black men died younger than White men in the WDOC (as described in previous point). Black and White men who died of Liver Cancer had equivalent ages of death on average; however, for Lung cancer, Colorectal cancer, Pancreatic cancer, Kidney cancer and Other cancers Black men died younger than White men in the WDOC.
7. Age of Death by Race, Condition, and Time of Diagnosis: Cancer, Cardiovascular diseases and Pulmonary diseases (the three leading causes of non-suicide deaths in the WDOC) were analyzed for age of death and race based upon whether their condition was known prior to admission to the WDOC or if it was discovered during incarceration.
 - a. White men diagnosed with Cancer during incarceration died older than did White men diagnosed with Cancer prior to admission; conversely, Black men diagnosed with Cancer during incarceration died younger than did Black men diagnosed prior to admission. Black and White men diagnosed with Cancer prior to admission had equivalent life-spans. Black men diagnosed with Cancer during incarceration had shorter life-spans than did white men diagnosed with Cancer during incarceration.
 - b. White men diagnosed with Cardiovascular disease during incarceration lived approximately the same life-spans as did White men diagnosed with Cardiovascular diseases prior to admission; conversely, Black men diagnosed with Cardiovascular diseases during incarceration died younger than did Black men diagnosed prior to admission. Black men diagnosed with Cardiovascular disease prior to admission died younger than did white men diagnosed with Cardiovascular disease prior to admission. Black men diagnosed with Cardiovascular disease during incarceration died younger than did white men diagnosed with Cardiovascular disease during incarceration.

- c. White men diagnosed with Pulmonary disease during incarceration trended toward a shorter life-span than White men diagnosed with Pulmonary disease prior to admission; however, this may or may not be statistically significant. Black men diagnosed with Pulmonary disease during incarceration trended toward a longer life-span than did Black men diagnosed prior to admission; however, this may or may not be statistically significant. Black men diagnosed with Pulmonary disease prior to admission had significantly shorter life-spans than white men diagnosed with Pulmonary disease prior to admission. Black men diagnosed with Pulmonary disease during incarceration had significantly shorter life-spans than white men diagnosed with Pulmonary disease during incarceration.
8. Life-span by race in WDOC, Wisconsin, and U.S.: White men and Black men die on average at ages 56.2 years and 47.6 years, respectively, in the WDOC. White men and Black men die on average at ages 77.3 years and 69.7 years, respectively, in the Wisconsin general population. White men and Black men die on average at ages 74.8-76.4 years (depending on the study referenced) and 67.7-71.6 years (depending on the study referenced), respectively, in the WDOC. Ratio of White Men/Black Men life-spans are 0.91-0.94 for the U.S. population, 0.90 for Wisconsin and 0.85 for the WDOC.

Summary of Research Project

This second year of this award has provided Dr. Borysova with challenges and opportunities. She has learned how to navigate through the scientific data as well as through the social science research environment. She has revealed striking disparities between black and white men incarcerated in the WDOC and developed future research projects and intervention proposals for future directions. Dr. Borysova has used this second year as an opportunity to gain research skills, identify significant disparities previously not documented, and to develop her career as an independent researcher.

Key Research Accomplishments

- Reveal novel and important racial and ethnic health disparities in the Wisconsin Department of Correction.
- Establish collaborations with key researchers for investigating future directions for research and interventions.
- Engaged directly with the WDOC as a community partner through interaction, observation, and integrating the research and exposures.
- Preparation of two key manuscripts (in preparation) summarizing the results of this research.

Reportable Outcomes (A-I)

A. Grants and Research Proposals:

- co-PI for 2013 Pfizer Independent Grant for Learning & Change Award focused on adult vaccinations in minority communities **Funded**.
- Research collaborative proposal to study risk factors for suicide among prisoners in WDOC **Ongoing**

B. Peer Reviewed Manuscripts (in Peer Reviewed Scientific Journals)

In Preparation

- **Meghan E. Borysova**, Dawood H. Sultan. Cross-racial and Ethnic Causes of Mortality in WDOC.
- **Meghan E. Borysova**, Dawood H. Sultan. Lifespan of Black and White Men in the WDOC.
- **Meghan E. Borysova**, Ojmarrh Mitchell, Dawood H. Sultan. Cancer among Black and White Men in the Wisconsin Department of Corrections..

C. Scientific Talks Given

- 2014 WDOC Cross Racial and Ethnic Data to WDOC Bureau of Health employees

D. Invited Reviewer for Peer Reviewed Journals

- **Journal of Health Care for the Poor and Underserved (JHCPU)** A peer-reviewed journal focusing on contemporary health care issues of medically underserved communities. JHCPU is the official journal of the Association of Clinicians for the Underserved.
- **Health Promotion Practice (HPP)** A peer-reviewed bi-monthly journal devoted to the practical application of health promotion and education. HPP focuses on critical and strategic information for professionals engaged in the practice of developing, implementing, and evaluating health promotion and disease prevention programs. This journal is a member of the Committee on Publication Ethics.
- **Journal of Health Disparities Research and Practice** which is a peer-reviewed journal that explores the problems and challenges of health disparities among the diverse populations of the United States and the world. The journal invites submission of original papers from researchers, public health practitioners, and students researching and working on health disparities solutions.

Conclusions

The second year of this training grant has provided Dr. Borysova with the opportunity to develop sound research findings on the differences in lifespan and mortality between black and white men in the WDOC. The second year was weighted more heavily and data analysis than on coursework and other training opportunities. The second year provided the stepping stone to independence by developing collaborations to move from the work of this award to function as an independent investigator. While the manuscripts detailing the important data are still in preparation, this award was considered a success by the PI for having trained the PI in both scientific techniques and community based participatory research methods and on-the-ground trainings. The PI intends to continue work to improve health of minority communities and has developed perhaps a life-long interest for the over-incarceration of black men, their health and communities. The research conducted for this grant has many future directions it can take. The hope is that multiple researchers will take the opportunities to provide policy changes, interventions, and future discovery based on this work. We thank you for the opportunity.

Revised Statement of Work (SOW) REVISED 2013

This statement of work from the original award has been modified in order to reflect the changing environment and datasets available to the researcher. The investigator is working within the limits of Corrections as an institution. The initial Statement of Work was created under the cooperative agreement with the Florida Department of Corrections which had approved and supported the SOW. Over time the leadership has changed and the objectives and SOW of this grant must change in accordance. The changes affect the project goals, however, the project funded by the DOD remains true to the objectives of delineating the etiologies of racial and ethnic disparities in prostate cancer; and as well continue to maintain the objectives for the investigators to publish in well-respected journals, to apply for future funding, and to train the investigator in order to move her career along the trajectory of health equity solutions. The revised objectives of this research are to conduct a study within the Wisconsin Department of Corrections (WDOC) including a retrospective analysis of mortality across racial and ethnic groups as well as an analysis of cross racial and ethnic prostate cancer incidence. The size of the population in the WDOC is smaller than the FDOC and the population has had many fewer deaths from prostate cancer; therefore, the investigators have expanded the scope of research to include all-cause mortality. The socio-environmental causes of prostate cancer align with the socio-environmental causes of selected other cancers as well as cardiovascular diseases; therefore the investigators can draw parallels between all-cause mortality across races and ethnicities to the disparities in prostate cancer. Major milestones include Developing a Community Partnership with a State Department of Corrections (DOC), Accessing the Databases of the (DOC), Analysis of Prostate Cancer Incidence, Analysis of All-Cause Mortality, Extrapolation of Prostate Cancer Mortality Relative to the General United States Population, Publication of Manuscripts, Application for Grant Funding.

Participatory Organizations, Collaborators, and Consultants

Wisconsin Department of Corrections

3099 E. Washington Ave.

P.O. Box 7925

Madison, Wisconsin 53707-7925

(Community Partner)

University of South Florida Office of Clinical Research

12901 Bruce B. Downs Blvd. MDC 2

Tampa, Florida 33612-4799

(Statistical Analysis)

University of South Florida Center for Evidence-Based Medicine & Health Outcomes Research

12901 Bruce B Downs Blvd. MDC 02

Tampa, Florida 33612-4799

(Study Design and Interpretation)

Task 1. After several months of gubernatorial and administrator changes within the Florida Department of Corrections, investigators sought out an alternative Department of Corrections (DOC) to serve as a community partner. Emphasis was placed on selecting a DOC with a history and culture of academic collaborations and pursuit of quality health services for its population of inmates. (month 6)

Task 2. Apply to Wisconsin Department of Corrections WDOC to conduct research. (month 7)

- a. Submit formal application to conduct research within the state department of corrections
- b. Confirm and acquire all human subjects compliance approvals

Task 3. Identify the WDOC's datasets to serve in analysis. (months 8-11)

- a. Mortality
- b. Prostate Cancer Incidence (via third party system that oversees billing/coding)

Task 4. Analyze cross-racial and ethnic causes of mortality and lifespan. (months 12-18)

- a. Cancer
- b. Cancer subcategories
- c. Cardiovascular diseases
- d. Pulmonary Diseases
- e. Liver Diseases
- f. Kidney Diseases

Task 4. Access and analyze available variables for correlation to cross-racial and ethnic mortality and lifespan (months 15-24).

- a. Education level
- b. Age upon exposure to DOC
- c. Length of exposure to DOC
- d. Environmental differences in housing/fitness/diet during incarceration

Task 5. Acquire cross racial and ethnic WDOC prostate cancer data from third party health care organization. (22-26 (NCE))

Task 6. Publication of Manuscripts (months 2-28):

- a. Submit manuscript 1 – review article on inmate health (month 2)
- b. Submit manuscript 2 – review article on prostate cancer disparities (month 10)
- c. Submit manuscript 3 – data manuscript on cross racial and ethnic causes of mortality and lifespan in WDOC (month 18-24).
- d. Submit manuscript 4 – prostate cancer incidence (month 20).
- e. Submit grant – (month 18)
- f. Submit grant – (month 24)